

Physics 115 – Section 201
Homework #5
Due March 5, 2007

Essay 1 (10 points)

Are voltage and current the same thing? Why or why not? Give three examples of things you have observed in class, or in the outside world, to support your answer. Pick one of the models we discussed in class, and say what voltage and current are in that model.

Essay 2 (10 points)

Is the voltage everywhere the same in a series circuit? Draw a series circuit with two batteries and two bulbs, and say what voltages you would measure if you connected the voltmeter across different places in the circuit. Explain the voltage measurements in terms of one of the models we used in class. It's OK if your explanation is only qualitative - meaning you can explain why the voltage reading might be high or low or zero, you don't need to explain the exact numbers.

Problem 1 (10 points)

Suppose you measure the current through a resistor as a function of the voltage across that resistor, and you get the graph below. Write an equation for the current as a function of the voltage. What is the resistance of the resistor? How much current would flow through the resistor if the voltage was 15V?

